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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,695

04/28/2006

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LU 6141 (US)

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08/31/2009

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EXAMINER

CHEUNG, WILLIAM K

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

08/31/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,695	Applicant(s) GONIOUKH ET AL.	
	Examiner WILLIAM K. CHEUNG	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In view of the amendment filed June 1, 2009, claims 10-21 are pending.
2. In view of applicants' argument and the amendment filed June 1, 2009, the rejection of claims 10-21 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement, is withdrawn.
3. In view of the amendment filed June 1, 2009, the rejection of claims 20-21 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Marechal (US 6,355,741), is withdrawn.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 20-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 (line 20-21), the recitation "heat exchangers between separators" is considered indefinite. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 (line 2), the recitation "the mixing vessel" is considered indefinite. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 10-21 are rejected under 35 U.S.C. 102(b) as anticipated by Deckers et al. (WO 03/018646), translated in Deckers et al. (US 2004/0181015 A1), which is being referenced to herein.

10. (Currently amended) A process for continuously preparing an ethylene homopolymer or copolymer in a high-pressure tube reactor in presence of at least one free-radical polymerization initiator and, optionally, at least one molecular weight regulator at from 120°C to 350°C and a pressure from ~~400~~ 1000 to 4000 bar, wherein the ethylene homopolymer or copolymer is separated from unpolymerized ethylene and optionally from comonomers in a high-pressure stage at a pressure from 100 to 500 bar and at least one low-pressure stage at a pressure from 1 to 100 bar, the unpolymerized ethylene separated off in the high-pressure stage is separated from any remaining monomeric, oligomeric and/or polymeric constituents and is re-circulated to a first inlet of ~~a first~~ the tube reactor in a high-pressure circuit, and the unpolymerized ethylene separated off in the low-pressure stage is separated from any remaining monomeric, oligomeric and/or polymeric constituents and is re-circulated to a second inlet of ~~a second~~ the tube reactor in a low-pressure circuit, wherein the free-radical polymerization initiator is used as a solution in an isoparaffinic solvent, the isoparaffinic solvent comprising a boiling point equal to or less than 160°C, and the isoparaffinic solvent is separated from the monomeric, oligomeric and/or polymeric constituents in the low-pressure circuit, and the isoparaffinic solvent is reused for dissolving the free-radical polymerization initiator.

20. (Currently amended) An apparatus for polymerizing ethylene at high-pressure and, optionally, in the presence of one or more comonomers comprising:

- a) ~~at least one a~~ high-pressure tube reactor comprising ~~an inlet and~~ at least one feed point for a monomer and at least one feed point for a solution of polymerization initiators;
- b) at least one mixing vessel for dissolving the polymerization initiators in an isoparaffinic solvent ~~comprising~~ having a boiling point equal to or less than 160°C, connected to ~~the~~ at least one of the feed ~~point~~ points;
- c) at least one high-pressure stage and at least one low-pressure stage for separating unpolymerized reaction constituents from the polymer product;
- d) at least one high-pressure circuit for re-circulating the monomer separated off in the high-pressure stage to the inlet feed point of the high-pressure tube reactor;
- e) at least one low-pressure circuit for re-circulating monomer separated off in the low-pressure stage, the low-pressure circuit comprising at least one first separator for separating other reaction constituents from the monomer and solvent, and at least one last separator for separating the solvent from the monomer, with ~~at least one~~ heat exchangers between separators ~~exchanger~~; and
- f) a return line for re-circulating the solvent from the last separator to the mixing vessel.

Deckers et al. (abstract) a process and the apparatus capable to be used for polymerizing ethylene (gaseous) at high pressure. Regarding the claimed isoparaffin solvent (liquid), Deckers et al. (page 2, 0011) clearly teach the use of isoparaffinic solvent such as isododecane. As affirmed by applicants' specification (page 2, line 10-11), isoparaffinic solvents are all alkanes which have at least one branch. In view of the substantially identical isoparaffin disclosed in Deckers et al. and as claimed, the examiner has a reasonable basis to believe that the characteristics such as

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"spontaneous ignition temperature", "boiling point" features are inherently possessed in the isododecane of Deckers et al.

(57)

ABSTRACT

In a process for the polymerization of ethylene and optionally further monomers in a high-pressure reactor at from 120 to 350° C. and pressures of from 1000 to 4000 bar, hydrogen is intermittently introduced into the reactor.

Regarding the claimed "recirculated" feature, Deckers et al. (page 3-4, 0031) clearly teach that the unreacted ethylene and any unreacted comonomer by depressurization, after which the monomers are generally recirculated to the reactor. In view of applicants' specification fails to describe the methods on how the unreacted monomers to be recirculated, the teachings of Deckers et al. relating to recirculation is adequate.

[0031] After the last injection of polymerization initiator, the reaction mixture is cooled so that the product can be discharged from the reactor without thermal damage. The reaction mixture is discharged through a suitable high-pressure let-down valve at the outlet end of the tube reactor. After discharge of the reaction mixture, the polymer is separated from unreacted ethylene and any unreacted comonomer by depressurization, after which the monomers are generally recirculated to the reactor.

Regarding the claimed "heat exchangers", Deckers et al. (page 3, 0026) clearly disclose the use of heat exchangers" in their reactor system. In view of the 112 rejection for the recited "between separators", the rationale set forth is adequate.

In view of the reasons set forth above, claims 10-21 are anticipated.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM K. CHEUNG whose telephone number is (571)272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William K Cheung/
Primary Examiner, Art Unit 1796

William K. Cheung, Ph. D.
Primary Examiner
August 27, 2009